

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Previously Presented): A distributed printing control apparatus connecting with a plurality of printers, said distributed printing control apparatus distributing print data of interest, which is generated by an application program and is to be printed, into said plurality of printers, and transmitting the distributed print data to each of said printers, said distributed printing control apparatus comprising:

 a printer driver storage module that stores a plurality of printer drivers provided for a type of each of said printers;

 a virtual printer driver execute module that collects information with regard to performances of all available printers as destinations of distribution from said printer drivers, decides performance information with regard to a virtual printer driver from the collected information of performances of all said available printers, makes the application program execute a data conversion process based on the decided performance information, and obtains intermediate print data adequate for a virtual printer from said application program;

 a distribute module that distributes the intermediate print data to said plurality of printers; and

 an output control module that converts the distributed intermediate print data into final print data suitable for each of said printers by executing a data conversion process based on information regarding performance of each printer obtained by each of said printer drivers, and transmits the final print data to each of said printers via said printer drivers.

Claim 2 (Original): A distributed printing control apparatus in accordance with claim 1, wherein the virtual printer driver specifies information with regard to a highest-performance printer among all available printers as destinations of distribution.

Claim 3 (Original): A distributed printing control apparatus in accordance with claim 2, said distributed printing control apparatus further comprising:

a performance information collection module that collects information with regard to performances of all said available printers as the destinations of distribution from printer drivers individually provided for said available printers; and

a highest performance selection module that selects a highest performance among the performances of all said available printers collected by said performance information collection module.

Claim 4 (Previously Presented): A distributed printing control apparatus in accordance with claim 1, said distributed printing control apparatus further comprising:

a virtual printer printing information setting module that displays an input window on a display device and sets various pieces of information required for printing with said virtual printer, based on input data from an input device.

Claim 5 (Original): A distributed printing control apparatus in accordance with claim 4, said distributed printing control apparatus further comprising:

an information transmission module that causes at least part of the various pieces of information set by said virtual printer printing information setting module to undergo a series of processing carried out by each printer driver.

Claim 6 (Previously Presented): A distributed printing control apparatus in accordance with claim 4, said distributed printing control apparatus further comprising:

a real printer printing information setting module that is individually provided for each of said plurality of printers connected to said distributed printing control apparatus to set various pieces of information required for printing with said each printer; and

a display control module that displays a display window on said display device, the display window including a plurality of icons for individually activating said real printer printing information setting modules and an icon for activating said virtual printer printing information setting module.

Claim 7 (Previously Presented): A distributed printing control apparatus in accordance with claim 1, said distributed printing control apparatus further comprising:

a distribution information setting module that displays an input window for distribution of the print data and sets various pieces of information required for distributing the print data into said plurality of printers, based on the input data from said input device; and

a print data distribution module that distributes the print data into said plurality of printers, based on the various pieces of information set by said distribution information setting module.

Claim 8 (Original): A distributed printing control apparatus in accordance with claim 7, wherein one of the various pieces of information required for distributing the print data into said plurality of printers restricts a destination of distribution of the print data to a printer included in a specific group selected among said plurality of printers connected to said distributed printing control apparatus.

Claim 9 (Previously Presented): A distributed printing control apparatus in accordance with claim 1, wherein the intermediate print data obtained by said intermediate print data generation module is temporarily registered as an intermediate print file in an external storage device.

Claim 10 (Previously Presented): A distributed printing control apparatus in accordance with claim 1, wherein said plurality of printers is connected to said distributed printing control apparatus via a computer network.

Claim 11 (Previously Presented): A distributed printing control method that distributes print data of interest, which is generated by an application program and is to be printed, into a plurality of printers, and transmits the distributed print data to each of said printers, said distributed printing control method comprising the steps of:

- (a) providing a plurality of printer drivers for a type of each of said printers in a storage device;
- (b) executing a virtual printer driver to obtain intermediate print data adequate for a virtual printer from said application program, the executing of the virtual printer driver including collecting information with regard to performances of all available printers as destinations of distribution from said printer drivers, deciding performance information with regard to said virtual printer driver from said collected information of performances of all said available printers, and making the application program execute a data conversion process based on the decided performance information;
- (c) distributing the intermediate print data to the plurality of printers;
- (d) converting the distributed intermediate print data into final print data suitable for each of said printers by executing a data conversion process based on information regarding performance of each printer obtained by each of said printer drivers; and
- (e) transmitting the final print data to each of said printers via said printer drivers.

Claim 12 (Canceled).

Claim 13 (Previously Presented): A computer readable recording medium used in a distributed printing control apparatus, said distributed printing control apparatus connecting with a plurality of computers, distributing print data of interest, which is generated by an application program and is to be printed, into a plurality of printers, and transmitting the distributed print data to each of said printers, said computer readable recording medium comprising computer-executable instructions causing a computer to perform the functions of:

- (a) providing a plurality of printer drivers for a type of each of said printers in a storage device;
- (b) executing a virtual printer driver to obtain intermediate print data adequate for a virtual printer from said application program and using the obtained intermediate print data as the print data of interest, the executing of the virtual printer driver including collecting information with regard to performances of all available printers as destinations of distribution from said printer drivers, deciding performance information with regard to said virtual printer driver from said collected information of performances of all said available printers, and making the application program execute a data conversion process based on the decided performance information;
- (c) distributing the intermediate print data to the plurality of printers;
- (d) converting the distributed intermediate print data into final print data suitable for each of said printers by executing a data conversion process based on information regarding performance of each printer obtained by each of said printer drivers; and
- (e) transmitting the final print data to each of said printers via said printer drivers.

Claim 14 (Original): A computer readable recording medium in accordance with claim 13, wherein the virtual printer driver specifies information with regard to a highest-performance printer among all available printers as destinations of distribution.

Claim 15 (Previously Presented): A computer readable recording medium in accordance with claim 14, wherein said computer-executable instructions further cause the computer to perform the functions of:

(f) collecting information with regard to performances of all said available printers as the destinations of distribution from printer drivers individually provided for said available printers; and

(g) selecting a highest performance among the performances of all said available printers collected by said function (f).

Claim 16 (Previously Presented): A computer readable recording medium in accordance with claim 13, wherein said computer-executable instructions further cause the computer to perform the function of:

(h) displaying an input window on a display device and setting various pieces of information required for printing with said virtual printer, based on input data from an input device.

Claim 17 (Previously Presented): A computer readable recording medium in accordance with claim 16, wherein said computer-executable instructions further cause the computer to perform the function of:

causing at least part of the various pieces of information set by said function (h) to undergo a series of processing carried out by each printer driver.

Claim 18 (Previously Presented): A computer readable recording medium in accordance with claim 16, wherein said computer-executable instructions further cause the computer to perform the functions of:

(i) setting various pieces of information required for printing with each of said plurality of printers connected to said distributed printing control apparatus, said function (i) being individually set for said each printer; and

(j) displaying a display window on said display device, the display window including a plurality of icons for individually activating said functions (i) and an icon for activating said function (h).

Claims 19 and 20 (Canceled).

Claim 21 (Previously Presented): A distributed printing control apparatus that distributes print data of interest, which is generated by an application program and is to be printed, into a plurality of printers and outputs the distributed print data to each of said plurality of printers via a printer driver corresponding to a type of each of said printers, said distributed printing control apparatus comprising:

a printer driver storage module that stores a plurality of printer drivers;

a virtual printer driver execute module that collects, when said plurality of printers is of the same type, information with regard to the performance of that particular type of printer from the printer driver corresponding to the type, which is stored in said printer driver storage module, decides performance information with regard to a virtual printer from the collected information of the performance of the printer, makes the application program execute a data conversion process based on the decided performance information, and obtains intermediate print data adequate for said virtual printer from said application program;

a print data allocation module that allocates the intermediate print data to said plurality of printers; and

an output data control module that transmits the intermediate print data respectively to said plurality of printers according to the allocation by said print data allocation module without any data conversion by the corresponding printer driver.

Claim 22 (Original): A distributed printing control apparatus in accordance with claim 21, wherein a predetermined unit of the allocation of the intermediate print data by said print data allocation module is each page of a document expressed by print data.

Claim 23 (Previously Presented): A distributed printing control apparatus in accordance with claim 21, wherein the intermediate print data obtained by said intermediate print data generation module is temporarily registered as an intermediate print file in an external storage device.

Claim 24 (Original): A distributed printing control apparatus in accordance with claim 23, said distributed printing control apparatus reading the intermediate print file registered in said external storage device in response to an external command and re-executing distributed printing of the intermediate print data in the intermediate print file with said plurality of printers.

Claim 25 (Original): A distributed printing control apparatus in accordance with claim 24, wherein said print data allocation module and said output data control module are activated again to attain the re-execution of the distributed printing.

Claim 26 (Previously Presented): A distributed printing control apparatus in accordance with claim 21, said distributed printing control apparatus further comprising:

a performance information collecting module that collects information regarding performances of each of said plurality of printers from a printer driver provided for each of said printers; and

an identity decision module that determines that said plurality of printers is of the identical type, based on the performances of said plurality of printers collected by said performance information collecting module.

Claim 27 (Previously Presented): A distributed printing control apparatus in accordance with claim 21, said distributed printing control apparatus further comprising:

a distribution information setting module that displays an input window for distribution of the print data and sets various pieces of information required for distributing the print data into said plurality of printers, based on input data from an input device,

wherein said print data allocation module allocates the intermediate print data, based on the various pieces of information set by said distribution information setting module.

Claim 28 (Original): A distributed printing control apparatus in accordance with claim 27, wherein one of the various pieces of information required for distributing the print data into said plurality of printers restricts a destination of distribution of the print data to a printer included in a specific group selected among said plurality of printers connected to said distributed printing control apparatus.

Claim 29 (Previously Presented): A distributed printing control apparatus in accordance with claim 27, wherein the intermediate print data obtained by said intermediate print data generation module is specified as an intermediate print file and is temporarily registered, together with the various pieces of information set by said distribution information setting module, in an external storage device.

Claim 30 (Previously Presented): A distributed printing control apparatus in accordance with claim 21, wherein at least one of said plurality of printers is connected to said distributed printing control apparatus via a computer network.

Claim 31 (Previously Presented): A distributed printing control apparatus that distributes print data of interest, which is generated by an application program and is to be printed, into a plurality of printers and outputs the distributed print data to each of said plurality of printers via a printer driver corresponding to a type of each of said printers, said distributed printing control apparatus comprising:

- a printer driver storage module that stores a plurality of printer drivers;

- a virtual printer driver execute module that collects, when said plurality of printers is of the same type, information with regard to the performance of that particular type of printer from the printer driver corresponding to the type, which is stored in said printer driver storage module, decides performance information with regard to a virtual printer from the collected information of the performance of the printer, makes the application program execute a data conversion process based on the decided performance information, and obtains intermediate print data adequate for said virtual printer from said application program;

- a print data allocation module that allocates the intermediate print data to said plurality of printers;

- an identity decision module that determines whether or not said plurality of printers is of the identical type; and

- an output data control module that, when it is determined that said plurality of printers is of the identical type, transmits the intermediate print data respectively to said plurality of printers according to the allocation by said print data allocation module without any data conversion by the corresponding printer driver, and when it is determined that said plurality of printers is not of the identical type, transmits the intermediate print data respectively to said plurality of printers according to the allocation by said print data allocation module with data conversion by the corresponding printer driver.

Claim 32 (Previously Presented): A distributed printing control method that distributes print data of interest, which is generated by an application program and is to be printed, into a plurality of printers and outputs the distributed print data to each of said plurality of printers via a printer driver corresponding to a type of each of said printers, said distributed printing control method comprising the steps of:

- (a) providing a plurality of printer drivers in a storage device;
- (b) executing a virtual printer driver to obtain intermediate print data adequate for a virtual printer from said application program, the executing of the virtual printer driver including collecting, when said plurality of printers is of the same type, information with regard to the performance of that particular type of printer from the printer driver corresponding to the type, deciding performance information with regard to said virtual printer from the collected information of the performance of the printer, and making the application program execute a data conversion process based on the decided performance information;
- (c) allocating the intermediate print data to said plurality of printers; and
- (d) transmitting the intermediate print data respectively to said plurality of printers according to the allocation in said step (c) without any data conversion by the corresponding printer driver.

Claim 33 (Canceled).

Claim 34 (Previously Presented): A distributed printing control method that distributes print data of interest, which is generated by an application program and is to be printed, into a plurality of printers and outputs the distributed print data to each of said plurality of printers via a printer driver corresponding to a type of each of said printers, said distributed printing control method comprising the steps of:

(a) providing a plurality of printer drivers in a storage device;

(b) executing a virtual printer driver to obtain intermediate print data adequate for a virtual printer from said application program, the executing of the virtual printer driver including collecting, when said plurality of printers is of the same type, information with regard to the performance of that particular type of printer from the printer driver corresponding to the type, deciding performance information with regard to said virtual printer from the collected information of the performance of the printer, and making the application program execute a data conversion process based on the decided performance information;

(c) allocating the intermediate print data to said plurality of printers;

(d) determining whether or not said plurality of printers is of the identical type; and

(e) when it is determined that said plurality of printers is of the identical type, transmitting the intermediate print data respectively to said plurality of printers according to the allocation in said step (c) without any data conversion by the corresponding printer driver, and when it is determined that said plurality of printers is not of the identical type, transmitting the intermediate print data respectively to said plurality of printers according to the allocation in said step (c) with data conversion by the corresponding printer driver.

Claim 35 (Previously Presented): A computer readable recording medium used in a distributed printing control apparatus, said distributed printing control apparatus distributing print data of interest, which is generated by an application program and is to be printed, into a plurality of printers of an identical type and outputting the distributed print data to each of said plurality of printers via a printer driver provided for each of said printers, said computer readable recording medium comprising computer-executable instructions causing a computer to perform the functions of:

- (a) providing a plurality of printer drivers in a storage device;
- (b) executing a virtual printer driver to obtain intermediate print data adequate for a virtual printer from said application program, the executing of the virtual printer driver including collecting, when said plurality of printers is of the same type, information with regard to the performance of that particular type of printer from the printer driver corresponding to the type, deciding performance information with regard to said virtual printer from the collected information of the performance of the printer, and making the application program execute a data conversion process based on the decided performance information;

- (c) allocating the intermediate print data to said plurality of printers; and
- (d) transmitting the intermediate print data respectively to said plurality of printers according to the allocation by said function (c) without any data conversion by the corresponding printer driver.

Claim 36 (Original): A computer readable recording medium in accordance with claim 35, wherein a predetermined unit of the allocation of the intermediate print data by said function (c) is each page of a document expressed by print data.

Claim 37 (Previously Presented): A computer readable recording medium in accordance with claim 35, wherein the intermediate print data obtained by said function (b) is temporarily registered as an intermediate print file in an external storage device.

Claim 38 (Previously Presented): A computer readable recording medium in accordance with claim 37, wherein said computer-executable instructions further cause the computer to perform the function of:

reading the intermediate print file registered in said external storage device in response to an external command and re-executing distributed printing of the intermediate print data in the intermediate print file with said plurality of printers.

Claim 39 (Previously Presented): A computer readable recording medium in accordance with claim 35, wherein said computer-executable instructions further cause the computer to perform the functions of:

(e) displaying an input window for distribution of the print data and setting various pieces of information required for distributing the print data into said plurality of printers, based on input data from an input device,

where said function (c) allocates the intermediate print data, based on the various pieces of information set in said step (e); and

(f) specifying the intermediate print data obtained by said function (b) as an intermediate print file and outputting the intermediate print file together with the various pieces of information set in said step (e) to an external storage device.

Claim 40 (Canceled).

Claim 41 (Previously Presented): A computer readable recording medium used in a distributed printing control apparatus, said distributed printing control apparatus distributing print data of interest, which is generated by an application program and is to be printed, into a plurality of printers and outputting the distributed print data to each of said plurality of printers via a printer driver corresponding to a type of each of said printers, said computer readable recording medium comprising computer-executable instructions causing a computer to perform the functions of:

- (a) providing a plurality of printer drivers in a storage device;
- (b) executing a virtual printer driver to obtain intermediate print data adequate for a virtual printer from said application program, the executing of the virtual printer driver including collecting, when said plurality of printers is of the same type, information with regard to the performance of that particular type of printer from the printer driver corresponding to the type, deciding performance information with regard to said virtual printer from the collected information of the performance of the printer, and making the application program execute a data conversion process based on the decided performance information;
- (c) allocating the intermediate print data to said plurality of printers;
- (d) determining whether or not said plurality of printers is of the identical type; and
- (e) when it is determined that said plurality of printers is of the identical type, transmitting the intermediate print data respectively to said plurality of printers according to the allocation by said function (c) without any data conversion by the corresponding printer driver, and when it is determined that said plurality of printers is not of the identical type, transmitting the intermediate print data respectively to said plurality of printers according to the allocation by said function (c) with data conversion by the corresponding printer driver.

Claims 42 and 43 (Canceled).

Claim 44 (Previously Presented): A distributed printing control apparatus that distributes print data of interest, which is generated by an application program and is to be printed, into a plurality of printers, and transmits the distributed print data to each of said printers, said distributed printing control apparatus comprising:

- a printer driver storage module that stores a plurality of printer drivers provided for a type of each of said printers;

- a destination of distribution specification module that specifies a plurality of printers as destinations of distribution;

- a virtual printer driver execute module that collects information with regard to performances of the plurality of printers specified by the destination of distribution specification module from said printer drivers stored in the printer driver storage module, decides performance information with regard to a virtual printer from the collected information of performances of the plurality of printers, makes the application program execute a data conversion process based on the decided performance information, and obtains intermediate print data adequate for said virtual printer from said application program;

- an allocation determination module that groups the obtained intermediate print data by a predetermined unit, specifies allocation of respective grouped parts of the print data to the plurality of printers specified by the destination of distribution specification module, and outputs the print data as allocation information to the plurality of printers in a distributive manner;

- a working status detection module that detects a current working status of a printer specified as a destination of distribution according to the allocation information from the printer drivers stored in the printer driver storage module;

- a display control module that displays one window on a display device, the window including at least a field showing the allocation information and another field showing the current working status detected by said working status detection module; and

- an output control module that distributes the intermediate print data obtained by the virtual printer driver execute module based on the allocation information, and outputs the distributed intermediate print data to each printer via each printer driver.

Claim 45 (Original): A distributed printing control apparatus in accordance with claim 44, said distributed printing control apparatus further comprising:

a first control module that causes said display control module to carry out a display with regard to a print job, while one unit of print data specified by the print job is either in distributed printing or in a waiting queue.

Claim 46 (Original): A distributed printing control apparatus in accordance with claim 45, said distributed printing control apparatus further comprising:

a second control module that causes said display control module to carry out a display with regard to the print job, while the distributed printing of the unit of print data specified by the print job is concluded.

Claim 47 (Original): A distributed printing control apparatus in accordance with claim 46, said distributed printing control apparatus further comprising a switch that is operated to alternatively change over between the display by said first control module and the display by said second control module.

Claim 48 (Previously Presented): A distributed printing control apparatus in accordance with claim 46, wherein said second control module allocates an order of collection to the respective printers by considering a sequence of collected resulting prints and displays the allocation in the window.

Claim 49 (Previously Presented): A distributed printing control apparatus in accordance with claim 46, wherein said second control module displays in the window a switch for activating another cycle of distributed printing after conclusion of one cycle of distributed printing.

Claim 50 (Previously Presented): A distributed printing control apparatus in accordance with claim 44, wherein the allocation information with regard to multiple print jobs, each representing the print data, is simultaneously displayed in the window.

Claim 51 (Previously Presented): A distributed printing control apparatus in accordance with claim 44, said distributed printing control apparatus comprising:

a distribution information setting module that displays an input window on said display device and sets diverse pieces of information with regard to distribution of the print data, based on input data from an input device,

wherein the allocation information is specified, based on the diverse pieces of information set by said distribution information setting module.

Claim 52 (Previously Presented): A distributed printing control method that distributes print data of interest, which is generated by an application program and is to be printed, into a plurality of printers, and transmits the distributed print data to each of said printers, said distributed printing control method comprising the steps of:

- (a) storing a plurality of printer drivers provided for a type of each of said printers;
- (b) specifying a plurality of printers as destinations of distributions;
- (c) executing a virtual printer driver to obtain intermediate print data adequate for a virtual printer from said application program, the executing of the virtual printer driver including collecting information with regard to performances of the plurality of printers specified as destinations of distributions, deciding performance information with regard to a virtual printer from the collected information of performances of the plurality of printers, and making the application program execute a data conversion process based on the decided performance;
- (d) grouping the obtained intermediate print data by a predetermined unit;
- (e) specifying allocation of respective grouped parts of the print data to the plurality of printers;
- (f) outputting the print data as allocation information to the plurality of printers in a distributive manner;
- (g) detecting a current working status of a printer specified as a destination of distribution according to the allocation information; and
- (h) displaying one window on a display device, the window including at least a field showing the allocation information and another field showing the current working status detected in said step (g).

Claim 53 (Canceled).

Claim 54 (Previously Presented): A computer readable recording medium used in a distributed printing control apparatus, said distributed printing control apparatus distributing print data of interest, which is generated by an application program and is to be printed, into a plurality of printers, and transmits the distributed print data to each of said printers, said computer readable recording medium comprising computer-executable instructions causing a computer to perform the functions of:

- (a) storing a plurality of printer drivers provided for a type of each of said printers;
- (b) specifying a plurality of printers as destinations of distributions;
- (c) executing a virtual printer driver to obtain intermediate print data adequate for a virtual printer from said application program, the executing of the virtual printer driver including collecting information with regard to performances of the plurality of printers specified as destinations of distributions, deciding performance information with regard to a virtual printer from the collected information of performances of the plurality of printers, and making the application program execute a data conversion process based on the decided performance;
- (d) grouping the obtained intermediate print data by a predetermined unit;
- (e) specifying allocation of respective grouped parts of the print data to the plurality of printers;
- (f) outputting the print data as allocation information to the plurality of printers in a distributive manner;
- (g) detecting a current working status of a printer specified as a destination of distribution according to the allocation information; and
- (h) displaying one window on a display device, the window including at least a field showing the allocation information and another field showing the current working status detected in said step (g).

Claim 55 (Previously Presented): A computer readable recording medium in accordance with claim 54, wherein said computer-executable instructions further cause the computer to perform the function of:

- (i) carrying out a display with regard to a print job, while one unit of print data specified by the print job is either in distributed printing or in a waiting queue.

Claim 56 (Previously Presented): A computer readable recording medium in accordance with claim 55, wherein said computer-executable instructions further cause the computer to perform the function of:

(j) carrying out a display with regard to the print job, while the distributed printing of the unit of print data specified by the print job is concluded.

Claims 57-97 (Canceled).